The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

January 6, 2020

Transmitted via Email

Peter Corey
Town of Whitefield
Board of Selectmen
56 Littleton Road
Whitefield, NH 03598
administrativeassistant@whitefieldnh.org

Subject: **Water Conservation Plan and Waiver Approval**
Whitefield – Whitefield Water Department (PWS ID#: 2501010)
Water Conservation Plan, NHDES # 003577

Dear Mr. Corey:

On December 10, 2019, the New Hampshire Department of Environmental Services ("DES") Drinking Water and Groundwater Bureau received a Water Conservation Plan (the "WCP"), signed on December 9, 2019, for the Whitefield Water Department, located in Whitefield, New Hampshire. Pursuant to RSA 485:61 and Env-Wq 2101, community water systems seeking permits from DES for new sources of groundwater shall submit a water conservation plan to DES. Based on review of the WCP, DES has determined the WCP complies with Env-Wq 2101, *Water Conservation* rules.

Pursuant to Env-Wq 2101, the Town of Whitefield and the North Country Council were provided a copy of the WCP, along with other required materials. On December 26, 2019, DES received the certified mail return receipts for those mailings.

On December 3, 2019, DES received a waiver request, signed on December 2, 2019, in accordance with Env-Wq 2101.23, as follows:

1. A waiver to Env-Wq 2101.06(c) *Reading Service Meters Quarterly* has been requested.

2. A waiver to Env-Wq 2101.11(d) *Billing Customers Quarterly* has been requested.

The waivers have been requested to provide time for the water system to hire and train an additional employee to assist with service meter reading and billing, to adjust the budget to cover the costs of the additional meter reading and customer billing, and to put a new rate structure in place.

DES approves the WCP and the waiver requests based on the following conditions:

1. No later than source activation, all source meters, distribution meters, meters measuring water consuming processes, and any transfer meters and data loggers shall be installed.

2. Source meters and any other meters measuring water consuming processes prior to distribution shall be read at least monthly.

3. The system shall continue reporting monthly source production volumes to the DES Water Use Registration and Reporting Program on a quarterly basis.

4. Meters shall continue to be installed on all service connections and points of transfer to consecutive water systems and privately owned redistribution systems that are added to the system.

5. Service meters shall continue to be read at least twice a year until quarterly service meter reading practices are established or this waiver approval expires, whichever is earlier.

6. All meters shall be installed per the manufacturer's instructions or American Water Works Association standards.

7. All meters shall be tested and maintained based on the schedule proposed in the WCP.

8. A water balance—the difference between the system input volume and the metered authorized consumption—shall be reported annually to DES. The water balance shall be reported by March 1 for the prior year using the online reporting tool. The first water balance will be due on March 1, 2021 for calendar year 2020.

9. A conservation rate structure shall continue to be implemented. Customers shall be charged based on the amount of water each connection uses, and the rate for residential connections shall be structured so that the cost per gallon(s) is either constant or increasing with the amount of water used.

10. Customers shall continue to be billed at least twice a year until quarterly billing practices are established or this waiver approval expires, whichever is earlier.

11. Within one year of source approval, a leak detection and repair program shall be implemented in accordance with the WCP.

12. Leaks shall be repaired within 60 days of discovery.

13. From the date of this approval, all non-metallic pipes installed in the system shall be outfitted with detectable tracer tape or detectable tracer wire, or be GPS located and maintained in a GIS system.

14. A water conservation outreach and education program shall be implemented in accordance with the WCP, including becoming a WaterSense partner and promoting the WaterSense program.

15. Every three years from the date of this approval, a *Water Conservation Plan Ongoing Compliance Reporting Form* shall be submitted to DES documenting how the system has maintained compliance with the WCP. The following records shall be maintained by the water system to include with the report:

    a. A leak log including the date a leak was discovered, the date a leak was repaired, the type of leak (ex. water main, service line, hydrant, valve), the approximate size of the leak (gpm), and the nearest address to the leak.

    b. A summary of the water efficiency outreach activities.

    c. Date of installation and replacement of all system-side meters as well as testing and calibration records.

    d. Dates and summaries of leak detection activities.

16. The waiver shall be valid for no more than four years from the date of this approval. Prior to the expiration of the waiver, a waiver request shall be sought in order to be considered an extension of the original waiver approval.

17. Proposed changes to the WCP shall not be implemented unless approved by DES.

The online *Annual Water Balance Reporting Form* and the *Water Conservation Plan Ongoing Compliance Reporting Form* may be located by going to the DES website (www.des.nh.gov), clicking on the "A-Z List" in the top right corner of the page, clicking "Water Conservation," and scrolling down to "Forms/Applications."

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at kelsey.vaughn@des.nh.gov.

Sincerely,

Kelsey Vaughn

Kelsey Vaughn
Water Conservation Program
Drinking Water and Groundwater Bureau

ec: Robert Larson, Fredrick Ingerson II; Town of Whitefield
Joel Banaszak; Horizons Engineering, Inc.
North Country Council
Andrew Koff, Stacey Herbold; DES

WATER CONSERVATION PLAN: Whitefield Water Department

A community water system seeking authorization for a new source of water must submit a water conservation plan to the New Hampshire Department of Environmental Services (NHDES) for approval demonstrating how the water system proposes to comply with water conservation standards pursuant to Env-Wq 2101, *Water Conservation* rules. Whitefield Water Department is an existing large community water system.

Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.

I. Introduction

A. Contact Information

1. Name and location of system:

   Whitefield Water Department in Whitefield, New Hampshire
   The water system is located within the town limits, east and west of Route 3, south and north of Route 116, and along Route 142.

2. Current owner of system and mailing address:

   Town of Whitefield
   56 Littleton Road, Whitefield, New Hampshire 03598

3. Name and mailing address of preparer of water conservation plan:

   Horizons Engineering, Inc.
   Joel Banaszak, P.G. #902
   PO Box 1825
   New London, New Hampshire 03257

B. System Overview

1. Description of the community being served:

   The water system provides drinking water and fire protection to approximately 1,560 people (~640 service connections). There is a mix of residential, industrial/commercial/institutional, and municipal customers.

2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation:

   The water system obtains water from six wells in four separate locations: the Dodge Well Field, the Robinson Well Field, the Bray Hill Well, and the Cherry Mountain Well. Dodge Well #1 (BRW7A) was originally installed in 1985 and was inactive since 1996. Its reactivation is what made the system subject to the Water Conservation Rules. Final Large Community Well Siting Approval was issued on May 10, 2019 with a condition of approval that the water conservation plan for the system be finalized and implemented, and the well was activated in May 2019. There are no identified non-potable sources in the water system.

3. Name designation of each water source:

   Dodge Well Field: BRW6A (existing), BRW7A (new/reactivation)
   Robinson Well Field: GPW1 (existing), GW2 (existing)
   Bray Hill Well: BRW4 (existing)
   Cherry Mountain Well: BRW1 (existing)

4. Number of connections for each of the following classes:
    a) Residential: ~580 (estimate)
    b) Industrial/Commercial/Institutional: ~50 (estimate)
    c) Municipal: ~10 (estimate)

5. The water system does not provide water to any consecutive water systems or privately owned redistribution systems.

6. There are no service connections that receive more than 20,000 gpd. However, there are three major businesses that receive water from the water system: Mountain View Grand Hotel, Presby Industrial, and Morrison retirement complex.

C. Transfer of Ownership

1. The system ownership is not proposed to be transferred.

II. System Side Management

A. Water Meter

1. Source and Other System Side Meters

a) No later than the source activation date, meters will be installed on each new and any existing water source. Note: some meters are serving a dual role as a source meter and also a distribution meter.

b) No later than the source activation date, all water consuming processes prior to distribution, such as backwash, treatment process water, and continuous analyzers will be metered.

c) An irrigation well is not proposed.

d) Meter information for each water source and other system side meters:

Bray Hill Well
Meter Size: 1.5"
Meter Make: Badger
Meter Model: Recordall 160 (Turbo Series)
Typical Operating Range: 4-200 gpm
Meter Installation Date: April 2019 (new)

Robinson Well Field (sources aren't individually metered)
Meter Size: 4"
Meter Make: Elster
Meter Model: EVOQ4
Meter Flow Range: 4-880 gpm
Meter Installation Date: 2012 (new; has not been tested since installation)
Note: This meter is due for testing and has a 10-year battery life

Dodge Well #1
Meter Size: 1.5"
Meter Make: Badger
Meter Model: Recordall 160 (Turbo Series)
Typical Operating Range: 4-200 gpm

Meter Installation Date: April 2019 (new)

Dodge Well #2
Meter Size: 1.5"
Meter Make: Badger
Meter Model: Recordall 160 (Turbo Series)
Typical Operating Range: 4-200 gpm
Meter Installation Date: April 2019 (new)

Cherry Mountain Well
Meter Size: 1.5"
Meter Make: Badger
Meter Model: Recordall 160 (Turbo Series)
Typical Operating Range: 4-200 gpm
Meter Installation Date: April 2019 (new)

e) No later than the source activation date, source meters and other system side meters will be read at least monthly.

2. Service Meter Installation, Reading, and Maintenance

a) Service meters are already installed on all service connections, including public sector service connections and all points of transfer to consecutive water systems and privately owned redistribution systems.

b) Summary of service meter makes, models, sizes, and dates of installation: New meters were installed on all service connections (except 2 connections) between 2018 and June 2019. The meters were manufactured by Neptune.

c) Service meters are currently read twice a year (in April and October). Env-Wq 2101.06(c) requires service meters to be read at least quarterly. Whitefield Water Department has submitted a separate waiver request for this requirement.

d) Service meters are read by drive-by radio read.

e) It is expected it will take 1-2 days to read all service meters.

f) Service meters will be maintained in accordance with II.A.3.e), below.

3. Meter Selection, Installation, and Maintenance

a) All meters will be American Water Works Association (AWWA) certified.

b) The selected size of the meters will be based on projected flow rates.

c) Meters will be installed as specified by the manufacturer, including requirements for horizontal or vertical placement, distance of straight run of pipe upstream and downstream of the meter, and strainer installation. If the manufacturer does not supply installation specifics, meters will be installed in accordance with the "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance" (AWWA, 2012).

d) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer's accuracy warranty extends beyond the schedule below, the meter will be tested or changed-out no later than the warranty expiration date.

Meter Size (inches)	Testing Rate (years)
<1"	10 yrs
1" - 2"	4 yrs
3"	2 yrs
>3"	1 yr

e) A log of the dates meters were installed, tested, calibrated, repaired, and replaced will be maintained. Calibration certificates will be kept on file.

B. Water Balance and Water Audit

1. The system currently has service meters installed. Due to the service meter and source meter replacement projects during 2018, an accurate water balance (system input volume – authorized metered consumption) could not be determined and included in this WCP.

2. No later than March 1 of each year, a water balance for the previous year will be reported to NHDES using the NHDES online water balance reporting tool. The electronic reporting form is located on the Water Conservation homepage of the NHDES website.

3. If the water balance calculated in II.B.2., above is more than 15% of the system input volume, the water system will prepare a water audit and response plan and submit them with the water balance.

   a) The water audit will be completed in accordance with the "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (AWWA, 2016).

   b) The response plan will be based on the findings of the water audit and will identify how the water system intends to reduce the water balance to below 15% within two years.

C. Leak Detection and Repair

1. Description of the system's leak detection program to be implemented within one year of source approval: The system will conduct monthly water usage trend analyses to identify potential leaks within the distribution network. If trends indicate a potential leak, the water dept will institute a leak grid analysis consisting of isolating branch networks, pressure drop detection at key points, acoustical leak detection, and visual site analysis.

2. Non-metal pipes will either be GPS located and stored in a GIS system or equipped with detectable tracer tape or detectable tracer wire during new installation.

3. Leak detection will be conducted in accordance with the "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (AWWA, 2016).

4. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.23.

5. A log of all leaks will be maintained, including the date the leak was discovered, the date the leak was repaired, the type of leak (ex. service, main, hydrant, valve), the estimated size of the leak (gpm), and the nearest street address to the leak.

D. Pressure Management

1. The design pressures of the system are from 20 psi to 160 psi.

2. The system was designed with pressures over 100 psi because of undulating topography, which creates high pressure zones within the distribution network. Service connections that are subject to high pressure conditions are fitted with pressure reducing valves (PRVs).

III. Consumption Side Management

A. Conservation Rate Structure and Billing

1. A conservation rate structure is already being implemented. A conservation rate structure is one in which customers are charged based on usage, and the rate per unit of water for residential connections is uniform (ex. $4.00/1000 gallons of water) or increases with usage (ex. $4.00/0-500 gallons of water, $4.50/501-1000 gallons of water).

2. The current rate structure was approved on April 15, 2019 at the Selectmen's Meeting and is as follows:

   Each water bill includes a connection fee as well as a fee for the volume of usage. The connection fee is based on the meter size (see table below). The usage fee is $6.55 per 1,000 gallons.

Meter Size	Connection Fee
5/8 inch	$135
3/4 inch	$148
1 inch	$174
1.5 inch	$226
2 inch	$278
>3 inch	$330

3. Irrigation water will not be billed separately.

4. Customers are currently billed twice a year (in April and October with payment due in May and November). Env-Wq 2101.11(d) requires customers to be billed at least quarterly. Whitefield Water Department has submitted a separate waiver request for this requirement.

B. Educational Outreach Initiative

1. No later than the source activation date, the system will become a WaterSense partner and promote the WaterSense program. The system will include the "Look for WaterSense" logo on all bills, other mailings, and the system's website. The logo will be accompanied by the WaterSense web address and WaterSense messaging. Information about the WaterSense program, including the logo and messaging, is available on the program's website (http://www.epa.gov/watersense/).

2. The system will maintain a log indicating how the system has complied with III. B.1., above. The log will include dates the outreach and education actions were taken and what was done.

IV. Reporting and Implementation

A. By no later than March 1 of each year, a water balance for the previous year will be submitted to NHDES using the electronic reporting form located on the Water Conservation homepage of the NHDES website (www.des.nh.gov).

B. The water system will continue to report monthly production volumes, quarterly to the NHDES Water Use Registration and Reporting Program. Monthly means once every calendar month, but no sooner than 27 days after and no later than 33 days after the previous reading.

C. The water system will submit a form supplied by NHDES once every three years from the date of the water conservation plan approval, documenting how compliance with the requirements of Env-Wq 2101, Water Conservation rules, is being achieved.

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): John E Tholl

Owner Signature: _____ Date: 12/9/19

Appendix A
Definitions

Authorized metered consumption: billed metered water plus unbilled metered water.

Community water system (CWS): a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Consecutive water system: a public water system that buys or otherwise receives some or all of its finished water from one or more wholesale systems for at least 60 days per year.

Final source approval: the date of final well siting approval or the date of issuance of the large groundwater withdrawal permit.

Large community water system: a community water system that serves more than 1,000 persons.

Privately owned redistribution system (PORS): A system for the provision of piped water for human consumption which does not meet the definition of a public water system and meets all of the following criteria:

(1) Obtains all of its water from, but is not owned or operated by, a public water system; (2) serves a population of at least 25 people, 10 household units or 15 service connections, whichever is fewest, for at least 60 days per year; and (3) has exterior pumping facilities, not including facilities used to reduce pressure, or exterior storage facilities which are not part of building plumbing.

Public water system (PWS): a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Small community water system: a community water system that serves 1,000 people or less.

Source activation date: the date the source is placed into use.

System input volume: the volume of water input to the water supply system after treatment, analysis, and storage.

Water balance: the difference between the system input volume and authorized metered consumption.

Water conservation: any beneficial reduction in water losses, waste or use.

Wholesale system: a public water system or an industrial, commercial or institutional (ICI) water user that treats source water and then sells or otherwise delivers finished water to a consecutive water system or privately owned distribution system.

Appendix B
Notification Process

Public Notification Instructions
Once a final draft of the water conservation plan is agreed upon by the applicant and NHDES, NHDES will send a signature line to the applicant for addition to the plan along with a summary of the requirements of Env-Wq 2101, which may be found at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm.

Within 10 working days of receiving the summary from NHDES, the applicant is required to provide a copy of the water conservation plan and rules summary via certified mail with return receipt requested to:

- the governing board of the municipality in which a proposed source is located,
- the governing board of all municipalities that receive water from the water system (if any),
- the governing board of all wholesale customers of the water system (if any), and
- the regional planning commission serving the location of the proposed source.

The applicant must also request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 and to promote water conservation landscaping for new projects.

All signed copies of the certified mail return receipts (the green cards) must be forwarded to NHDES along with the final, signed water conservation plan before approval of the water conservation plan will be issued.

Notification of Consecutive Water Systems and Privately Owned Redistribution Systems
Within 5 working days of obtaining final approval of the source from NHDES, the system is required to notify any consecutive water system or privately owned redistribution system receiving water from the system of the following:

- The projected source activation date; and
- The system will be subject to Env-Wq 2101 as of the source activation date, pursuant to Env-Wq 2101.13 and should contact the NHDES Water Conservation Program using the contact information below.

Kelsey Vaughn, Water Conservationist
New Hampshire Department of Environmental Services
Drinking Water and Groundwater Bureau
PO Box 95
Concord, NH 03302-0095
kelsey.vaughn@des.nh.gov
Phone: (603) 271-0659
Fax: (603) 271-0656

WATER CONSERVATION WAIVER REQUEST
WHITEFIELD WATER DEPARTMENT

I. System and Contact Information

1. Name and location of water system:
   Whitefield Water Department
   Town of Whitefield, 56 Littleton Road, Whitefield, NH 03598

2. Name and contact information for the preparer of this waiver request:
   Robert Larson, DPW Director
   56 Littleton Road
   Whitefield, NH 03598
   dpwdirector@whitefieldnh.org
   Office: 603-837-2551

3. Description of the water system:
   The water system provides drinking water and fire protection to approximately 1,560 people (~640 service connections). There is a mix of residential, industrial/commercial/institutional, and municipal customers.

II. Requested Rules to Be Waived

1. Env-Wq 2101.06(c) – Relative to reading the meters on all service connections quarterly.

2. Env-Wq 2101.11(d) – Relative to billing all customers quarterly.

III. Economic and Operational Consequences of Complying with the Rules Requested to Be Waived

1. Currently, the 640 service connections are read by one Water Department full-time employee. This employee is also responsible for water system operations, such as installations, repairs, water quality tests, and reporting. It would not be feasible for that employee to read the service meters two more times in a year and complete the other system tasks that are necessary to operate a well-managed water system.

2. Currently, there is one full-time employee responsible for compiling the water meter readings and billing each customer. This employee also has other responsibilities in the Accounting/Billing Department. It is anticipated that this employee does not have the time to complete the compilation of readings and billing two more times a year and satisfactorily complete the other duties.

3. It is anticipated that there would be an increase in costs for the additional meter reading and customer billing, including employees' time, ink and paper for printing the bills, and envelopes and postage for mailing the bills. The Water Department needs time to revise their budgets to account for these costs.

4. Currently, the rate structure is based on twice-yearly meter reading and billing. The rate structure would need to be adjusted to reflect the quarterly meter reading and billing. A new rate structure was just approved at the April 15, 2019 Selectmen's Meeting. Time is needed to develop a new rate structure and have it approved by the Board of Selectmen.

IV. Proposed Alternatives for Meeting the Intentions of the Rules Requested to Be Waived

1. We will submit a request to the Select Board to hire a second full-time employee starting in Budget Year 2020. After the employee is hired, we will train the employee in meter reading and the billing system.

2. Because the new service meter installations are complete, a weekly monitoring system will be in place as of January 2020. With this new system, a viable leak detection plan will be implemented as well. Utilizing the weekly data from the service meters, we will be able to build trend analysis programs to detect leaks in a timely manner. This data will allow us to notify homeowners (users) that a leak is occurring and encourage immediate repairs.

3. The Town is looking into the usage of social media, texting, and email notifications when a sudden trend usage change occurs. Due to the weekly reading data, we can isolate leaks before they become a burden to the Town as well as the homeowner.

4. The water users will receive water efficiency messaging by the Water Department's promotion of the EPA's Water Sense Program on the latest bills and the Department's website.

V. Length of Time the Waiver Will Be Needed

1. The specified rules need to be waived for the maximum amount of time allowed under Env-Wq 2101.23(h), which is four years, to provide time to train the new employee, to ensure that the meter reading and billing systems are working properly, and to put a new rate structure in place.

I certify that the information provided in this waiver request is complete, accurate, and not misleading.

Robert Larson, Public Works Director

12/2/19
Date